



Centaur 50th Anniversary Engineering Design Challenge “Pushing the Limits”

National Standards Alignment

Ohio Revised Science Standards and Model Curriculum

Forces and Motion: Forces have magnitude and direction.

Forces can be added. The net force on an object is the sum of all the forces acting on the object. The net force acting on an object can change the object direction and/or speed

Next Generation Science Standards:

Motion and Stability: Forces and Interactions

MS-PS2-2: Plan and investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object.

MS-RST.6-8.3: Follow precisely a multi-step procedure when carrying out experiments, taking measurements, or performing technical tasks.

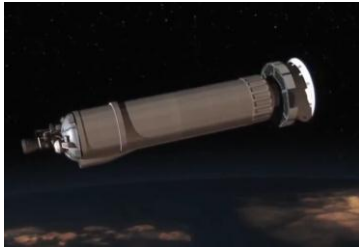
Engineering Design

ETS1-4: Develop a model to generate data for interactive testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

HS-ETS1-2: Design a solution to a complex real-world problem by breaking it down into a smaller, more manageable problem that can be solved through engineering.

Student Learning Objectives/Targets:

- Students will be aware of the history of the Centaur Rocket as it relates to the 50th Anniversary celebration, including how Centaur's development affects the 21st century space travel.
- Students will discuss the process of creating their propulsion design, how it was created, challenges that arose during the engineering process, how their team worked together to re-design and re-test their systems, as well as discussing the success of their final product.



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- Students will learn about the “Engineering Design Process” which is common to the engineering field. This in turn will give the students an understanding of how everyday products are designed and fabricated, along with the research that is performed to create a final product from a simple idea.